Volunteer Lake Assessment Program Individual Lake Reports

ISLAND POND, WASHINGTON, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	1,600	**Max. Depth (m):**	16.8	**Flushing Rate (yr^{-1})**	1
Surface Area (Ac.):	202	**Mean Depth (m):**	5.6	**P Retention Coef:**	0.64
Shore Length (m):	5,800	**Volume (m^3):**	4,574,000	**Elevation (ft):**	1407

TROPHIC CLASSIFICATION

Year	Trophic class
2001	MESOTROPHIC
2007	MESOTROPHIC

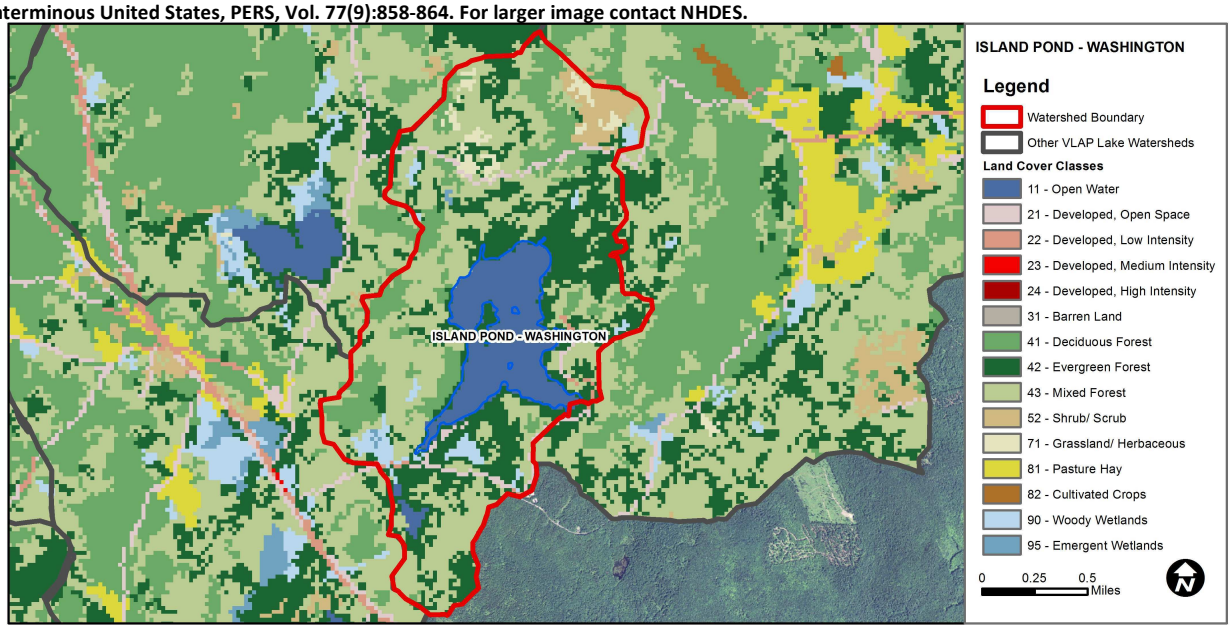
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	The calculated median is from 5 or more samples and is > indicator and the chlorophyll a indicator is exceeded.
	pH	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	Oxygen, Dissolved	Very Good	There are a total of at least 10 samples with 0 exceedances of criteria.
	Dissolved oxygen satura	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Chlorophyll-a	Slightly Bad	The calculated median is from 5 or more samples and is > indicator.
Primary Contact Recreation	Escherichia coli	Very Good	Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria.
	Chlorophyll-a	Good	There are at least 10 samples with one, but < 10% of samples, exceeding indicator.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	13.3	Barren Land	0	Grassland/Herbaceous	1.92
Developed-Open Space	1.99	Deciduous Forest	12.45	Pasture Hay	0
Developed-Low Intensity	0.4	Evergreen Forest	28.03	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	36.68	Woody Wetlands	2.65
Developed-High Intensity	0	Shrub-Scrub	2.41	Emergent Wetlands	0.19

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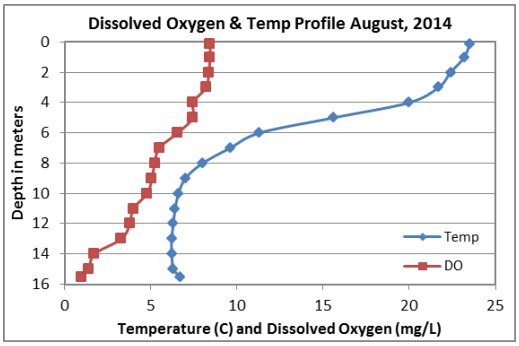
2014 Data Summary

Observations and Recommendations (*Refer to Table 1 and Historical Deep Spot Data Graphics)*

- **Chlorophyll-a:** Chlorophyll levels increased from July to August and were slightly elevated and greater than the state median. Historical trend analysis indicates highly variable chlorophyll levels since monitoring began.
- **Conductivity/Chloride:** Deep spot and tributary conductivity levels remained low and less than the state median. Historical trend analysis indicates significantly decreasing (improving) epilimnetic (upper water layer) conductivity since monitoring began.
- **E. coli:** Beach, Boathouse and Journey's End Inlet E. coli levels were much less than the state standards for public beaches (88 cts/100 mL) and surface waters (406 cts/100 mL).
- **Total Phosphorus:** Epilimnetic phosphorus levels were slightly elevated in July but decreased to low levels in August. Average epilimnetic phosphorus level was less than the state median but increased from 2013. Historical trend analysis indicates highly variable epilimnetic phosphorus since monitoring began. Metalimnetic (middle water layer) and Hypolimnetic (lower water layer) phosphorus levels were stable and low. Boathouse Inlet, Bodnars Cove and Outlet phosphorus levels were within average ranges for those stations. Journey's End Inlet phosphorus levels were slightly elevated and beaver activity in the area may have caused the elevated phosphorus levels.
- **Transparency:** Transparency remained stable from July to August and was slightly better than the state median. However, historical trend analysis indicates significantly decreasing (worsening) transparency since monitoring began.
- **Turbidity:** Deep spot and tributary turbidity levels were within low to average ranges for those stations.
- **pH:** Deep spot and tributary pH levels were less than the desirable range 6.5-8.0 units and potentially critical to aquatic life. Historical trend analysis indicates highly variable epilimnetic pH since monitoring began.
- **Recommended Actions:** Beaver activity in Journey's End Inlet likely caused the elevated phosphorus levels. If beaver activity is a concern, flow through pipes or other devices could be installed through the dam to allow consistent water flow. The increased frequency and intensity of storm events highlights the importance of managing stormwater runoff from lake and watershed residents, dirt/gravel roads and steep slopes. Consult DES' "NH Homeowner's Guide to Stormwater Management" for ways to implement stormwater best management projects. Keep up the great work!



NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

Chloride: > 230 mg/L (chronic)

E. coli: > 88 cts/100 mL – public beach

E. coli: > 406 cts/100 mL – surface waters

Turbidity: > 10 NTU above natural level

pH: between 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.

Alkalinity: 4.9 mg/L

Chlorophyll-a: 4.58 mg/m^3

Conductivity: 40.0 uS/cm

Chloride: 4 mg/L

Total Phosphorus: 12 ug/L

Transparency: 3.2 m

pH: 6.6

Station Name	Table 1. 2014 Average Water Quality Data for ISLAND POND								
	Alk. mg/l	Chlor-a ug/l	Cond. uS/cm	E. Coli #/100ml	Total P ug/l	Trans. m		Turb. ntu	pH
						NVS	VS		
Epilimnion	1.4	5.12	33.6		7	3.32	3.59	1.09	6.11
Metalimnion			33.9		6			0.98	5.64
Hypolimnion			34.8		8			0.82	5.56
Beach				10					
Boathouse Inlet			33.9	30	19			0.79	5.22
Bodnars Cove			32.5		4			0.96	6.03
Dam Outlet			32.8		3			0.75	6.07
Journeys End Inlet			16.9	10	19			1.04	5.83

Historical Water Quality Trend Analysis

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	Improving	Data significantly decreasing.	Chlorophyll-a	Stable	Trend not significant; data highly variable.
pH (epilimnion)	Stable	Trend not significant; data highly variable.	Transparency	Worsening	Data significantly decreasing.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.